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REMARKS

This amendment is responsive to the official action dated October 19, 2004.

Claim 60 is currently pending.

No claims are allowed.

Rejection of Claim 60 Under 35 U.S.C. §103(a)

The Official Action states that claim 60 is rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 6,393,169 (Paniccia) in view of Leas U.S. Patent No. 6,019,523 (Honmou). The Examiner stated that Paniccia discloses an optical device package comprising a substrate having a mounting surface, an optoelectronic device operably coupled to the mounting surface, wherein the optoelectronic device is in electrical communication with the substrate, the optoelectronic device having an upper surface that emits light normal to the substrate, an optically transparent fiber coupling assembly that is integrally molded with the optoelectronic device, the coupling assembly further having a planar mirror and an enclosure to enclose the entire assembly. The Examiner further stated that while Paniccia does not disclose the structure to engage the fiber that Honmou discloses engaging a fiber, and a housing around the assembly and that the present invention is obvious in view of a combination of these references.

It is submitted that the present invention, as currently recited in claim 60, is not prima facie obvious over the combination of Paniccia and Honmou for the reasons discussed below.

The Applicant asserts that claim 60 of the present invention requires that the optoelectronic device and planar mirror be embedded within the fiber coupling medium. The Examiner has identified the fiber coupling medium as being reference 123, 209A, and has referred the applicant to Col. 4, Lines 29; Col. 5, Line 18 and Col. 8, Lines 1-17 for supporting disclosure of this assertion. The Examiner is plainly wrong with regard to the interpretation of these elements. The Applicant has reproduced the cited passages from the Paniccia reference below for reference:

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In one embodiment, a thermal conductor or heat sink 123 is coupled to back side 147 of integrated circuit die 101, as shown in FIG. 1A. (Col., 4, Line 29)

In one embodiment, known passive alignment techniques are used to align heat sink 123 with integrated circuit die 101. (Col. 5, Line 18)

FIG. 3C is a cross-section of still another embodiment of the present invention to optically communicate input/output signals between or among two or more integrated circuit devices such as the integrated circuit devices 101 and 159 of FIG. 3C. In particular, FIG. 3C shows integrated circuit die 101 thermally coupled to heat sink 209A and integrated circuit die 159 thermally coupled to heat sink 209B. Heat sink 209A includes optical assembly 125A and heat sink 209B includes optical assembly 125B. As shown in FIG. 3C, optical assemblies 125A and 125B are optically coupled through an optical fiber 301, which is optically coupled between a lens 303 and a lens 305. It is appreciated that heat sinks 209A and 209B of FIG. 3C together correspond to heat sink 209 of FIG. 3B. Similarly, optical assemblies 125A and 125B, with optical lenses 303 and 305 and optical fiber 301, of FIG. 3C together correspond to optical assembly 125 of FIG. 3B. (Col. 8, Lines 1-17)

It is clear from a review of these passages that elements 123 and 209A are not fiber coupling assemblies but heat sinks. This is clearly described throughout the passages cited by the Examiner. While heat sinks 123 and 209 are in fact disclosed as being optically transparent, there is no disclosure relative to the embedding of the optoelectronic device in the heat sink assembly nor is there any disclosure regarding the embedding of the planar mirror within the heat sink. In fact, the disclosure cited by the Examiner specifically states that passive alignment techniques may be utilized to align the heat sink with the die. If such alignment techniques may be utilized, it is clearly impossible that the optoelectronic device be embedded within the heat sink because if it were then movement of the heat sink relative to the integrated circuit die would result in tearing the optoelectronic device from the mounting surface on the die.

Additionally, element 125 within the Paniccia disclosure is clearly disclosed as being an element separate and apart from the heat sink 123. Element 125 is an optical assembly disposed within the heat sink 123. Optical element 125 is responsible for receiving,

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transmitting and redirecting the light beam 129, not heat sink 123. Heat sink 123 is simply optically transparent to the beam thereby allowing the beam to pass through the structure of the heat sink 123 on its way to and from the optical assembly 125. Again, if passive alignment techniques can be utilized whereby the heat sink 123 and optical assembly 125 can be moved relative to the optoelectronic device for calibration of the system, it is abundantly clear that the optoelectronic device and the planar mirrors cannot be embedded in the fiber coupling assembly as disclosed in the claims of the present invention. If such were the case, the passive alignment process would destroy the device.

With regard to the fiber coupling assembly, it is clear that the Paniccia device does not anticipate any form of fiber coupling. Paniccia only discloses that a light beam is directed through the optically transparent heat sink 123 and into the optical assembly 125. There is no disclosure regarding the claimed limitation that the fiber coupling assembly is integrally formed and molded with the planar mirror and the optoelectronic device embedded therein.

The Examiner has stated that the Honmou reference overcomes this deficiency. The Examiner has cited that elements 5, 6 and 7 of Fig. 1 in Honmou disclose a barrel shaped fiber coupling assembly for receiving a fiber. A review of the Honmou reference shows that element 5 is a fiber core, element 6 is a V-groove and element 7 is a transparent resin. In operation, a fiber 5 is placed onto the V-groove 6 which serves to align the fiber 5 and retain it in position while transparent resin 7 is placed over the assembly and allowed to cure. In this manner, the fiber is permanently attached to the optoelectronic assembly at the time of manufacture of the device.

The disclosure in Honmou is clearly completely different from the disclosure of the claimed invention. The present invention claims that the fiber coupling medium have a barrel shaped portion to operably engage a fiber optic cable. The key limitation here is operably engage. The present invention provides a module that can be incorporated into a device whereby the module has an integrally formed barrel shaped port into which a fiber cable is received and operably engaged. In contrast, the Honmou disclosure provides that the fiber is

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placed into the alignment groove and then permanently fastened in place using the transparent resin. This is not operably engaged but permanently fastened.

The claims of the present invention include the clear and unambiguous term "embed" which is intended to reflect that the "fiber coupling assembly" is integrally molded over the optoelectronic device and that the optoelectronic device is embedded within the fiber coupling assembly. Further, the present invention claims that the fiber coupling assembly is integrally molded with the optoelectronic device (embedding the optoelectronic device within the fiber coupling assembly) and that it includes a barrel portion for operably engaging a fiber. In contrast the references cited by the Examiner disclose an optical assembly disposed within a heat sink wherein the optical assembly is disposed adjacent the optoelectronic device (Paniccia) and the fiber is either adjacent the enclosure (Paniccia) or permanently adhered into the enclosure (Honmou).

Accordingly, even if the cited references were combined, they would not disclose numerous limitations that are found within the claims of the present invention. If a person of ordinary skill in the art combined the teachings of Paniccia and Honmou, they would not arrive at the present invention. In view of the foregoing, it is respectfully requested that the rejection of claim 60 under 35 U.S.C. §103(a) be withdrawn.

In summary, Applicants submit that the claim presented for consideration herein is patentable and each of the Examiner's rejections and objections has been overcome.

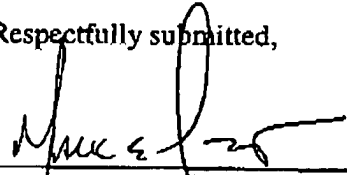
Accordingly, Applicants respectfully request favorable reconsideration and allowance of claim 60.

The Commissioner is hereby authorized to charge any additional required fee in connection with the filing of this paper or credit any overpayment to Deposit Account 02-0900.

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Should there be any outstanding matter that needs to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

Respectfully submitted,



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